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# **REMARKS**

## **I. Status of claims**

No claim is amended in this response; claims 1, 2, 4-9, 11 and 12 remain for consideration.

## **II. Response to anticipation rejection of claims 1, 2, 4-9 and 12**

The Examiner has rejected claims 1-2, 4-9, and 12 under 35 U.S.C. § 102 (b) as being anticipated by *Herzog* (US 6,265,502). Applicants respectfully request that the Examiner reconsider and withdraw the rejection for the reason that follows.

Claim 1 is an independent claim and claims 2, 4-9 and 12 depend from claim 1. Claim 1 claims an olefin polymerization process which comprises: (a) starting up the polymerization reaction in a gas-phase fluidized-bed reactor using a catalyst comprising a metallocene to produce a start-up polyolefin having a melt flow rate greater than 4.5 g/10 min; and (b) continuing the polymerization reaction and gradually decreasing the melt flow rate of the polyolefin to less than 4 g/10 min, wherein the melt flow rate is measured at 2.16 kg and 190°C in accordance with ISO 1133.

Applicants wish to draw the Examiner's attention to the limitations of claim 1. First, Applicants respectfully draw the Examiner's attention to the fact that the process of claim 1 uses a metallocene catalyst. As Applicants discussed in the background of the invention, unlike Ziegler-Natta catalysts which usually do not present start-up problems in olefin polymerization, metallocene catalysts presents considerable start-up problems. Many metallocene catalysts, particularly for bis(1-methyl-3-butylcyclopentadienyl)zirconium dichloride, tend to form fine particles during start-up of polymerization. The fine particles accumulate in the calming zone, form deposits and lumps, and hinder the start-up process to such an extent that the polymerization process may have to be terminated. See

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*Specification, page 1, lines 20-30.* The claimed invention deals with this start-up problem for the metallocene catalysts which may not occur to other catalysts such as Ziegler-Natta catalysts.

Second, Applicants respectfully draw the Examiner's attention to the fact that the process of the invention provides a specific solution to the start-up problem associated with the use of metallocene catalysts. That is, the process of the invention starts up the polymerization with a metallocene catalyst by producing a start-up polyolefin having a melt flow rate greater than 4.5 g/10 min and then continues the polymerization by producing a polyolefin having a melt flow rate less than 4.5 g/10 min. See claim 1. The claimed process has successfully reduced or eliminated the formation of lumps during the start-up step. See Example 1, page 33.

As the Examiner correctly notes, *Herzog* refers also to a start-up process for an olefin polymerization reaction in a gas-phase fluidized-bed reactor. However, there are plenty differences between *Herzog* and Applicants' invention. First, *Herzog* does not deal with the particular start-up problem with metallocene catalysts. The catalysts, which can be used in the start-up process of *Herzog*, are all Ziegler-Natta type catalysts. See *the Abstract, the Summary of the Invention on col. 1, lines 35-49, and the Description of the Invention on col. 5, lines 16-24, and in the Example on col. 6, starting from line 49*. Although *Herzog* states on col. 5, lines 24-25 that it is also possible to use a metallocene-based catalyst in its process, *Herzog* views metallocene catalysts, at best, as an equivalent to Ziegler-Natta catalysts. Reading *Herzog* as a whole, it is fair to say that *Herzog* does not recognize, teach, or suggest the start-up problem associated with metallocene catalysts which Applicants deal with in this invention.

Second, as *Herzog* does not deal with the start-up problem, it cannot provide any solution to the problem. As discussed above, Applicants solved the start-up problem associated with the use of metallocene catalysts by

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producing a start-up polyolefin having a melt flow rate greater than 4.5 g/10 min. *Herzog* evidently fails to teach this aspect of Applicants' claimed invention. The melt flow rate of the polymer is non-essential for *Herzog*'s start-up process. *Herzog* mentions that ethylene (co)polymers of a melt flow rate in the range of from 0.6 to 100 g/10 min (at 2.16 kg and 190°C) can be produced. See col. 5, line 67 to col. 6, line 6. However, *Herzog*'s start-up process is not limited to such a range of a melt flow rate and there is no indication in *Herzog* that a variation of the melt flow rate during the start-up process is carried out.

*MPEP* § 2131 provides: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). According to *MPEP* § 2131.02, "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). As discussed above, at least two claim elements of Applicants' claim 1 are missing from *Herzog*. Thus under 35 U.S.C. §102(b) and *MPEP* § 2131, *Herzog* cannot anticipate claim 1 and its dependent claims 2, 4-9 and 12 because these dependent claim all incorporate the limitations of claim 1.

## II. Response to obviousness rejection of claim 11

The Examiner has also rejected claim 11 under 35 U.S.C. §103(a) as being obvious over *Herzog* in view of U.S. 2006/0142152 A1 (*Coalter*). Note that this application is the U.S. national stage under 35 U.S.C. §371 of International Application PCT/EP2004/003452, filed April 1, 2004, claiming priority to German Patent Application No. 103 15 349.7, filed April 3, 2003 and U.S. Provisional Patent Application No. 60/469,192, filed May 9, 2003. As the German priority (April 3, 2003) and U.S. priority (May 9, 2003) of this application are prior to the earliest possible reference date of *Coalter* (Feb.

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20, 2004), *Coalter* is disqualified as a prior art against this invention and thus Applicants respectfully request that the Examiner withdraw the obviousness rejection.

In conclusion, Applicants respectfully request that the Examiner withdraw the rejections and allow remaining claims 1, 2, 4-9, 11 and 12. Applicants invite the Examiner to telephone their attorney, Shao-Hua Guo, at (610) 359-2455 if a discussion of the application might be helpful.

Respectfully submitted,  
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